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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ERIC J. STRANG

Appeal 2009-007902
Application 10/673,507
Technology Center 2100

Decided: June 28, 2010

Before JAMES D. THOMAS, LANCE LEONARD BARRY, and
STEPHEN C. SIU, *Administrative Patent Judges*.

SIU, *Administrative Patent Judge*.

DECISION ON REQUEST FOR REHEARING

The Appellant requests rehearing under 37 C.F.R. § 41.52 of a Decision on Appeal entered March 3, 2010 (the Decision). Specifically, the Appellant requests rehearing on the ground that the Decision fails to consider arguments presented in the Appeal Brief and Reply Brief.

I. Summary of the Original Decision

The subject matter on appeal involves controlling a process performed by a semiconductor processing tool in which simulation of the process is performed during the performance of the process using a model (Decision 2).

We noted that Tan (U.S. Patent No. 6,263,255 B1) discloses “real-time process control using . . . process models . . . to correctly process control parameters during the process run” (col. 2, ll. 7-10) and agreed with the Examiner that Tan, in combination with Sonderman (U.S. Patent No. 6,802,045 B1) and Jain (V.K. Jain and A.D. Snyder, *Mathematic-Physical Engine: Parallel Processing for Modeling and Simulation of Physical Phenomena*, 1994 Int’l Symposium on Parallel Architectures, Algorithms and Networks (ISPAN), 366-373 (IEEE, 1994)), would have rendered the claimed invention obvious (Decision 8-10).

We also reversed the Examiner’s decision rejecting claims 1-74 and 78-30 as being obvious over Sonderman and Jain and either Yonemura, Chen, Nikoonahad, or Fatke (Decision 10-11).

II. The Request for Rehearing

Appellant contends that Tan discloses “‘process control’ and not the modeling which is real time” (Req. Reh’g. 3). According to Appellant, Tan discloses “use on an *existing* process model for feedback or feed forward processing” (Req. Reh’g. 3) and uses “post-process data to *update and store*

a model for a subsequent processing step” (Req. Reh’g. 4) and that “the updated and stored process model . . . is applied as it stood at the moment when the wafer process starts” (Req. Reh’g. 5). Appellant further contends that Tan’s model “exists from previous runs, and [merely discloses] how one can keep these models up-to-date as wafers are processed” (Req. Reh’g. 4).

Appellant further re-iterates arguments previously presented regarding the following rejections applied by the Examiner:

1. the rejection of claims 22 and 59 under 35 U.S.C. § 103(a) as being unpatentable over Sonderman, Jain, and Yonemura;
2. the rejection of claims 23-28 and 60-65 under 35 U.S.C. § 103(a) as being unpatentable over Sonderman, Jain, and Chen;
3. the rejection of claims 31, 36, 68, and 73 under 35 U.S.C. § 103(a) as being unpatentable over Sonderman, Jain, and Nikoonahad;
4. the rejection of claims 35 and 72 under 35 U.S.C. § 103(a) as being unpatentable over Sonderman and Fatke;
5. the rejection of claims 79 and 80 under 35 U.S.C. § 103(a) as being unpatentable over Sonderman and Jain.

III. Issues

Thus, the issues before us are as follows:

1. Whether the combination of Sonderman, Jain, and Tan disclose or suggest performing a simulation of a process performed by a

semiconductor processing tool during the performance of the actual process using a physical model and

2. What is the status of the Examiner's rejection of claims 22-28, 31, 35, 36, 59-65, 68, 72, 73, 79, and 80 as being obvious over various combinations of Sonderman, Jain, Yonemura, Nikoonahad, Chen, and Fatke.

IV. Analysis

Issue 1

As we stated in the Decision, Tan also discloses “[m]odel-based run-to-run process control” (col. 2, l. 3) in which “inputs, process models, and process control strategies” are used to “correctly process control parameters during the process run” (col. 2, ll. 7-10). In view of Tan's explicit disclosure of “model-based” processes using “process models” to process parameters “during the process run,” we found that Tan discloses or suggests the disputed claim limitation.

We are not persuaded that the Decision overlooked or misapprehended arguments Appellant presented in the Appeal Brief or Reply Brief. While Appellant argues that Tan discloses “‘process control’ and not the modeling which is real time” (Req. Reh’g. 3), Appellant fails to provide persuasive arguments distinguishing Tan's explicit disclosure of utilizing “process models” with the claimed “model.”

Appellant cites to an exemplary embodiment of Tan (Req. Reh’g. 3-4; Tan, col. 5, l. 63 – col. 6, l. 8 and col. 6, ll. 24-47) and reproduces Fig. 2 of

Tan (Req. Reh’g. 5) to argue that Tan fails to disclose or suggest performing a simulation of an actual process during performance of the actual process using a physical model because, according to Appellant, Tan uses “an *existing* process model for feedback or feed forward processing” (Req. Reh’g. 3) and “post-process data to *update and store* a model for a subsequent processing step” (Req. Reh’g. 4). However, Appellant fails to address how Tan’s disclosure of model-based simulation “during the process run” (Tan, col. 2, ll. 9-10) differs from the argued claim limitation of performing a simulation of an actual process during performance of the actual process using a model.

Similarly, at the oral hearing held February 4, 2010, in response to questions regarding Tan’s disclosure of using a model to process parameters during the process run, Appellant’s representative stated that he “didn’t actually see in Tan . . . where he [Tan] actually described a real time control” (Oral hearing transcript, pg. 5) and that, although “in Tan, you, basically, have a model” (Oral hearing transcript, pg. 6), “[i]n Sonderman the model comes from a simulation result” (Oral hearing transcript, pg. 7).

Regarding Appellant’s statement that Tan does not describe a “real time control,” we note again that Tan discloses a “[m]odel-based real-time process control” (col. 2, l. 7) which Appellant has not shown to be different from a “real time control.” In addition, even assuming Tan fails to disclose a real time control, Appellant has not demonstrated any relevance between the alleged failure of Tan to disclose a real time control and the disputed

claim limitation of performing a simulation of an actual process during performance of the actual process using a model.

Regarding Appellant's statement that Sonderman discloses that a model comes from a simulation result, we are again unpersuaded by Appellant since even if Sonderman discloses only that a "model comes from a simulation result," this would have no bearing on whether Tan discloses model-based control of process parameters *during* the process run. In fact, this is precisely what Tan discloses.

Hence, we find Appellant's arguments presented in the Appeal Brief and reiterated in the Request for Rehearing and Appellant's observations presented at the oral hearing unavailing.

Issue 2

Appellant reiterates previous arguments supporting claims in response to obviousness rejections over various combinations of Sonderman, Jain, Yonemura, Chen, Nikoonahad, and Fatke. In the Decision, we reversed the Examiner's decision rejection of claims 1-74 and 78-80 as being obvious under 35 U.S.C. § 103 over Sonderman and Jain in view of either Yonemura, Chen, Nikoonahad, or Fatke (Decision 10-11).

Since we reversed the disputed rejections in the Decision, Appellant's reiteration of previously stated arguments pertaining to the disputed rejections are moot.

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SUMMARY

Appellant's arguments do not persuade us that our decision affirming the Examiner's rejection of claims 1, 38, and 78 as obvious has misapprehended or overlooked any point of fact or law. Also, we find no relevance in Appellant's restatement of arguments regarding rejections that were reversed. We therefore decline to modify our original decision entered March 3, 2010.

TIME PERIOD

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

DENIED

msc

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